

OUR BOOK SHELF.

Animal Forms: a Second Book of Zoology. By David S. Jordan, M.S., M.D., Ph.D., LL.D., President of Leland Stanford Junior University, and Prof. Harold Heath, Ph.D. Pp. vi + 258; 140 figs. and frontispiece. (London: Hirschfeld Bros., Ltd., 1902.) Price 6s. net.

THIS attractive volume, distinguished by the freshness and excellence of its illustrations, is designed as "a second book of zoology," "to meet the needs of the beginning student of zoology." The opening chapters deal, somewhat lightly, with the characteristics of living things and of animals in particular, and with the cell and its protoplasm. They are clear and straightforward, but they lack both distinction and distinctiveness. If this sort of introduction is desirable it should be less easy-going.

The bulk of the book consists of a description of the classes of animals, with particular reference to representative types, considered mainly in their structural aspects, but with considerable attention to functions, habits and life-history—always in a simple, elementary fashion. Here and there throughout the chapters the student is judiciously pulled up for a moment before one or other of the deeper problems of biology, e.g. the plasticity of form in sponges, regeneration in worms, and the origin of species. Apart from the relative prominence given to "ecology," the absence of anything suggestive of a cramming synopsis and the really fine illustrations, the survey does not differ markedly from that to be found in a crowd of other books.

It is very important that a simple work of this kind should not give the student any impressions which he will afterwards have to discard; therefore we doubt the wisdom of speaking of the "skull" of cuttlefishes, the "external" skeleton of echinoderms, the "gills" of the lancelet, the air-bladder as "a modified or degenerate lung." With such a graphic illustration of the viscera of the starfish, it seems a pity that a "twentieth century" text-book should retain the absurd terms "cardiac" and "pyloric" for the two main regions of the gut. As we should expect from the authors, such blemishes are very rare. We have to lament, however, that the desirable prominence given to "ecology" seems to have practically excluded the good old-fashioned lessons on homology, which we believe to be very useful to "the beginning student," and might also expect in a book entitled "Animal Forms." Another defect seems to us to be the relative absence of the definite suggestion of problems for the student to think over.

The half-tone illustrations, many from photographs, deserve great praise. We may notice, in particular, the mures on the frontispiece, the piddocks in their holes, the long-eared sunfish, the rattlesnake, the raccoon and the baby orang-utan. J. A. T.

Das botanische Practicum. Von Dr. Eduard Strasburger. Vierte umgearbeitete Auflage. Pp. I + 771. (Jena: Gustav Fischer, 1902.) Price Mark 20.

THE third edition of this well-known book has been so favourably received that a fourth edition has now been published. The alterations and additions in this new issue are not so extensive as in the previous one, but they are nevertheless considerable, and the whole book has been subjected to careful revision. The scope of the book has certainly advanced beyond the author's original intention as conveyed by the title, "Introduction to the Personal Study of Microscopic Botany," for there are references to several important facts which are highly interesting, but the experiments connected with them one would not think of undertaking unless they formed part of an original investigation; parthenogenesis in *Marsilia*

and the problem of intramortal or intravital staining are notable instances. As the facts are stated without critical opinions being offered, a simple reference to the publications would have been as valuable, and would have made a reduction even though slight in the size of the book. However, the greater number of the additional paragraphs are of considerable practical value, and not the least so are the directions or hints which emanate from Prof. Strasburger himself or from workers in his laboratory, as, for instance, the method of examining the root of *Vicia Faba*, the directions for embedding small algæ and the instructions for demonstrating protoplasmic threads (Plasmodesmen). Other notable additions include new tests for starch, fats, callus and cork, and the use of neutral violet as a reagent for pectic compounds. Darwin's device of using hornshavings as a hygrometer to determine the number of stomata and Buscalioni's colodion method for the same purpose are mentioned, and some account is given of Brown and Escombe's work on the diffusion of gases through small apertures. It will be found that this edition differs mainly by the insertion of new paragraphs, and practically the only chapter which is rewritten is the last, dealing principally with cell problems.

Principles of Sanitary Science and the Public Health.

By Prof. William T. Sedgwick, Ph.D. Pp. xix + 368. (New York: The Macmillan Company; London: Macmillan and Co., Ltd., 1902.) Price 12s. 6d. net.

A FEW sentences of the preface to this work serve admirably to indicate its scope and, it may be added, its attainment. "This volume deals with the principles, rather than the arts, of sanitation," the author writes. "It is intended to be no more than an elementary treatise on the subject; and while it is believed that it contains some new material, and some old material treated from new points of view, no special claim is made for originality either in substance or in method of presentation." The author has, therefore, chiefly sought to bring together and to present in a simple and logical form those fundamental scientific principles on which the great practical arts of modern sanitation securely rest.

If the chapter on disinfection is taken, that will serve well to illustrate the scope and limitations of the work. There the necessity for disinfection and the object of disinfection are dealt with, but no directions are given as to how principles are applied in actual practice.

It is a most readable work, in which every principle of sanitation that is enunciated is lucidly explained and convincingly advocated, and in which the history of the facts on which the principles of sanitation are based is brought right up to date. It is a good book for everyone to read, and there is certainly no better book for the student to master before he commences the study of the practical and administrative side to public health work.

The author is very sound in his opinions. It is necessary to aim at high ideals when one advocates preventive measures in the interest of the public health, for those measures which are generally thought to be extreme are frequently the only ones which attain their object; but the author's ideal of a city, the water-supply of which is derived from surface-water, owning the entire watershed and keeping it clean and uninhabited, is an impossible one. Even in America it must be rare indeed that a city can secure for its water-supply a totally uninhabited watershed; but everyone will agree that a systematic and frequent inspection should always be maintained to guard the purity of the water collected on such gathering grounds. It is one of the great reproaches upon the sanitary administration of this country that so little is done in this direction. Frequently one sees men employed to patrol river banks to guard the interests of those who have the sole right to the fishing, while no systematic inspection is carried out to guard against

dangerous pollution of the water in the higher interests of the public health.

The work is a welcome addition to public health literature, and it is sure to meet with general appreciation. It should appeal to a wide circle of readers, for it is written in a manner which presents a most important subject in a clear and intelligible light to everyone.

Nature Study: Realistic Geography. Model based on the 6-inch Ordnance Survey. Designed by G. Herbert Morrell, M.A. (London: Edward Stanford.) Price 3s.

THIS is a model of the country round Streatley-on-Thames, constructed by cutting out pieces of cardboard according to the contour lines and placing them one above another in the positions shown by the map. Spare pieces of cardboard, on which the contour lines are printed, ready for cutting out to make a second model, are enclosed in a portfolio along with the first. The construction of models of this kind has been carried out for some years in a number of schools, both in this country and abroad, but the general experience seems to be that, like the trigonometrical survey of the school and playground, and other similar devices, the time necessary to carry them out is too much for the value of the results obtained. The use of Mr. Morrell's model undoubtedly saves some time, inasmuch as the contour lines are already traced, but we suspect that the tracing of the contour lines is really the most important part of the exercise. But anything which assists in familiarising British school children with the ideas of contour lines and surfaces is to be welcomed; it is astonishing how many children who are familiarly acquainted with isobars, isothermals and "iso-" lines of all sorts have scarcely heard of contour lines, and it is not too much to state that the failure to present the conception of a contour or "iso-" line as the intersection of a surface with the surface of the earth is almost the fundamental defect in our teaching of advanced physical geography. Apart from its application to the purpose for which it is immediately intended, Mr. Morrell's model should be of value to teachers for demonstration.

A Junior Chemistry. By E. A. Tyler, B.A. Pp. viii + 228. (London: Methuen and Co., 1902.) Price 2s. 6d.

THE author's primary object seems to be to enable boys to present themselves successfully for the examinations in chemistry held in connection with the Oxford and Cambridge locals and similar examinations. He recognises the existence of a better way of teaching his subject than the one he adopts, and urges in extenuation of his procedure the inadequate provision made for practical science in most secondary schools and the small amount of time devoted to science in them. Mr. Tyler expresses the hope that the book he has written will enable boys in ordinary schools "to acquire, as far as possible, a scientific knowledge of chemistry," but he does not seem to understand that science is not properly included in the curriculum because of the information its study imparts, but rather as a means of developing a habit of mind. Unless chemistry is studied experimentally, and is made to train the pupil to observe and to reason from his observations, it has no right to a place on the school time-table. Before the pupil has been set to study the preparation and properties of a few simple substances, and from his own deductions taught to discover the laws of chemical combination, Mr. Tyler tries to explain to him the atomic theory, Avogadro's law, compound radicals, and other theoretical considerations. Though the author understands well enough all the chemistry a boy need learn at school, he does not quite appreciate why men of science desire such subjects as chemistry to be introduced into school work.

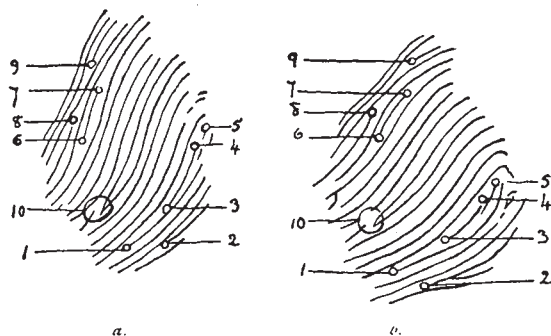
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LETTERS TO THE EDITOR.

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of NATURE. No notice is taken of anonymous communications.]

Finger Print Evidence.

BY the courtesy of authorities in Scotland Yard, I have just received duplicates of two enlarged photographs (on slightly different scales). These photographs were lately submitted in a court of law to prove the identity of *a*, the mark left on the window frame of a house after a burglary had been committed, with *b*, the impression of the left thumb of H. J., a criminal then released and at large, whose finger prints are preserved and classified in Scotland Yard. I wished to show the resemblance between *a* and *b* by the method described in my "Decipherment of Blurred Finger Prints," believing that to be the readiest way of explaining to a judge and jury the nature of the evidence about to be submitted to them. I send the results. The questions of the best mode of submitting evidence and of the amount of it that is reasonably required to carry conviction deserve early consideration, for we may have a great deal of it before long. It is as a contribution towards arriving at a conclusion that I send the enclosed. I should say that in the above-mentioned book, each pair of impressions was printed in triplicate and on a still larger scale than these. One of the three was untouched, the second had lines drawn like those in the figure, down the axes of the ridges, the third had the lines and numbers and nothing else, just as in the figure. The attention



of the judge and jury could be easily directed by counsel to whatever pair of corresponding points he might desire, by reference to their common number on the chart. Without some such guidance it would be extremely difficult to do so, for persons unaccustomed to finger prints are bewildered by the maze of their lineations.

Certain more or less faint lines run across *a* that seem to have been made with the brush when painting the window frame. They seriously interfere with the lineations just above No. 5 and to the right of it. No. 5 is itself so far affected by them that I do not attach full weight to it as a point of reference. But accurate comparison is possible at nine other points, all of which are marked, and a close agreement will be found between every pair of them as well as in the number of intervening ridges.

FRANCIS GALTON.

[The prints have been too much reduced from the tracings I sent, to be quite clear. Thus unless a lens be used, No. 2 in *b* will probably be misinterpreted.]

Remarkable Fossil Oysters from Syria.

IN examining a series of more than one hundred specimens of *Ostrea (Exogyra) flabellata*, Goldfuss, from the Middle Cretaceous of Lebanon, I was struck with the marked reproduction in the free upper valves of the figures of other shells to which the lower valves have been attached. These specimens were all collected in the same place, a hill near Bhamdûn, Mount Lebanon, Syria. They have been freed by weathering from a soft marly rock exceedingly rich in fossils. Specimens of *Ostrea*, *Plicatula*, *Pecten* and *Anomia* have the shell well preserved. Many others, including species of *Cardium*, *Trigonia*, *Corbula*, *Isocardia*, *Cytherea*, *Leda*, *Nucula*, *Cerithium*, *Alaria*, *Melo*, *Pterocera*, *Turritella*, *Natica* and others are preserved only as casts. Consequently the shell to